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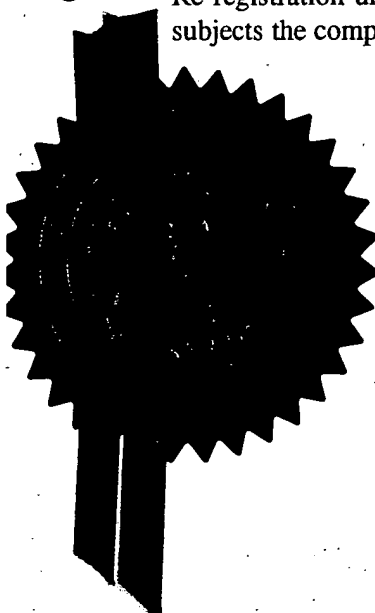
PCT

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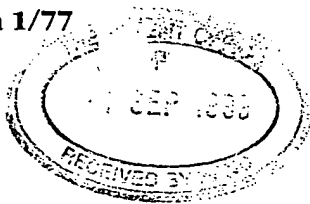
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Request for grant of a patent

(See the notes on the back of this form. You can also get an explanatory leaflet from the Patent Office to help you fill in this form)

The Patent Office

Cardiff Road
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1. Your reference	DW/RM/98126GB						
2. Patent application number (The Patent Office will fill in this part)	01 SEP 1999 9920664.1						
3. Full name, address and postcode of the or of each applicant (underline all surnames)	IDEAS WORKSHOP LTD 54 Cookham Road Maidenhead Berks SL6 7HT England						
Patents ADP number (if you know it)	731920001						
If the applicant is a corporate body, give the country/state of its incorporation							
4. Title of the invention	PARALLEL RULE						
5. Name of your agent (if you have one)	Batchellor, Kirk & Co.						
"Address for service" in the United Kingdom to which all correspondence should be sent (including the postcode)	102-108 Clerkenwell Road London EC1M 5SA						
Patents ADP number (if you know it)	315001 ✓						
6. If you are declaring priority from one or more earlier patent applications, give the country and the date of filing of the or of each of these earlier applications and (if you know it) the or each application number	<table border="0"> <tr> <th>Country</th> <th>Priority application number (if you know it)</th> <th>Date of filing (day / month / year)</th> </tr> <tr> <td> </td> <td> </td> <td> </td> </tr> </table>	Country	Priority application number (if you know it)	Date of filing (day / month / year)			
Country	Priority application number (if you know it)	Date of filing (day / month / year)					
7. If this application is divided or otherwise derived from an earlier UK application, give the number and the filing date of the earlier application	<table border="0"> <tr> <th>Number of earlier application</th> <th>Date of filing (day / month / year)</th> </tr> <tr> <td> </td> <td> </td> </tr> </table>	Number of earlier application	Date of filing (day / month / year)				
Number of earlier application	Date of filing (day / month / year)						
8. Is a statement of inventorship and of right to grant of a patent required in support of this request? (Answer 'Yes' if: a) any applicant named in part 3 is not an inventor, or b) there is an inventor who is not named as an applicant, or c) any named applicant is a corporate body. See note (d))	Yes						

PARALLEL RULE

This invention relates to parallel rules.

Parallel rules are used for navigation purposes to transfer a direction from one position to another on a chart. Thus a direction may be taken from a compass rose marked on the chart and drawn through a particular position on the chart so as to indicate a course or a transit, for example. When using navigational aids such as sextants or electronic global positioning systems (GPS) it is also necessary to mark a position where a line of latitude intersects a line of longitude, so as to show the craft's position.

10 The invention is based on the recognition that there is an advantage to be had from allowing relative movement of the rules in a direction orthogonal to the straight edges but prohibiting relative movement in a direction parallel to the straight edges.

Such a rule may be used conventionally to mark a line of longitude through a particular easting or westing by placing one straight edge parallel to a line of longitude shown on the chart and expanding the rule until one or other straight edge crosses the particular easting or westing indicated at the edge of the chart. The rule may then be used to mark a northing by placing an edge adjacent the northing scale at the edge of the chart, placing a pencil against the rule at the required northing, and expanding the rule to draw a line of latitude on the chart at the required northing. In the alternative the line of longitude could be drawn analogously. To facilitate such use, at least one component rule preferably has at least one through hole suitable to receive the point of a pencil.

25 In one form the linkage may comprise an intermediate member connected to each component rule by a respective set of three links, two links in each set being pivotally connected to both the intermediate member and the component rule by pivots situated on corners of a variable parallelogram, the other link in each set being pivotally

connected to the component rule and both pivotally and slidable connected to the intermediate member for sliding movement together, parallel to the straight edges.

In another form the linkage may comprise two links each pivotally connected to a respective component rule, each pivotally and slidably connected to the other
5 component rule for sliding movement parallel to its straight edge and pivotally connected together between the component rules.

Embodiments of the invention will now be described, by way of example, with reference to the accompanying drawings, in which:

Figure 1 is a plan view of a parallel rule embodying the invention, when closed;

10 Figure 2 is a cross sectional view of the rule of Figure 1;

Figure 3 is a plan view of the rule of Figure 1 shown in an open position; and

Figure 4 is a plan view of another parallel rule embodying the invention, shown in both open and closed positions.

Referring to the drawings, the parallel rule 2 has two component rules 4 and 6.

15 Each component rule 4 or 6 has a straight edge 8 positioned so that the straight edges are opposed and on the outside of the parallel rule. The component rules 4 and 6 are connected by a linkage 10 which allows relative movement of the rules in a direction orthogonal to the straight edges but prohibits relative movement in a direction parallel to the straight edges.

20 In each component rule 4 and 6, behind each straight edge 8 are conveniently positioned a plurality of through holes 12 each suitable to receive the point of a pencil. The holes 12 are placed in corresponding positions along each straight edge. In use, for example, the straight edge 8 of component rule 4 is aligned with a line of longitude at the edge of a chart so that one of the holes 12 covers a desired mark on the northing scale.
25 A pencil point is put in the corresponding hole 12 in the other component rule 6. Holding the component rule 4 still, the pencil and component rule 6 are moved to mark the chart with what is a line of latitude passing through the desired northing. The rule can be used

conventionally or in a similar fashion to mark an intersecting line of longitude passing through a desired easting or westing, so marking a position at the desired latitude and longitude.

The linkage shown in the embodiment of Figures 1 to 3 has an intermediate member 14 positioned between the component rules 4 and 6. Each component rule is connected to the intermediate member 14 by a set of three linkages 16, 18 and 20 or 16', 18' and 20'. The linkages are connected to the component rule 4 or 6 and the intermediate member 14, by pivot pins 22. The pivot pins connecting the linkages 16 and 20 or 16' and 20' are arranged at the corners of a respective parallelogram so that the distance between the pivot pins of each link is the same as the other in the set. Links 16, 16', 20 and 20' are the same length as each other. Links 18 and 18' are the same length as each other and in this example as the links 16, 16', 20 and 20'. The pivot pins 22 are located in the same relative positions on the component rules 4 and 6. The pivot pins for the links 16, 16', 20 and 20' are located the same distance apart on the intermediate member 14, as on the component rules 4 and 6. Ignoring the links 18, 18' the component rules 4 and 6 can move relative to the intermediate member 14 whilst retaining the straight edges 8 parallel. The links 18 are connected to the intermediate member 14 by a common pivot pin 22 which is itself slidable in a slot 24, parallel with the straight edges, in the intermediate member 14. Such constraint of the links 18 to move together prevents the component rules 4 and 6 moving relatively in a longitudinal direction parallel to the straight edges and confines relative movement to a direction normal to the straight edges.

Another linkage which achieves this effect is illustrated in Figure 4. Here the component rules 4 and 6 are connected by two links 26. Each link 26 is pivotally connected to a respective component rule 4 or 6 by one non-sliding pivot pin at 28. Each link is connected to the other respective component rule by another pivot pin 30 which is slidable in a slot 32 in the component rule. Each slot 32 is parallel with the

relevant straight edge 8. The links 26 are joined between their ends by a further pivot pin 34 such that the distances between the pivot pin 34 and the pins 28 and are the same as each other. The pivot pins 28 and the slots 32 are in the same relative positions on both component rules 4 and 6.

CLAIMS

1. A parallel rule, comprising two component rules each providing one of two opposed parallel straight edges, and a linkage allowing relative movement of the rules in a direction orthogonal to the straight edges but prohibiting relative movement in a
5 direction parallel to the straight edges.
2. A parallel rule as claimed in claim 1, wherein at least one component rule has at least one through hole suitable to receive the point of a pencil.
3. A parallel rule as claimed in claim 1 or 2, the linkage comprises an
10 intermediate member connected to each component rule by a respective set of three links, two links in each set being pivotally connected to both the intermediate member and the component rule by pivots situated on corners of a variable parallelogram, the other link in each set being pivotally connected to the component rule and both pivotally and slidable connected to the intermediate member for sliding movement together,
parallel to the straight edges.
- 15 4. A parallel rule as claimed in claim 1 or 2, wherein the linkage comprises two links each pivotally connected to a respective component rule, each pivotally and slidably connected to the other component rule for sliding movement parallel to its straight edge and pivotally connected together between the component rules.

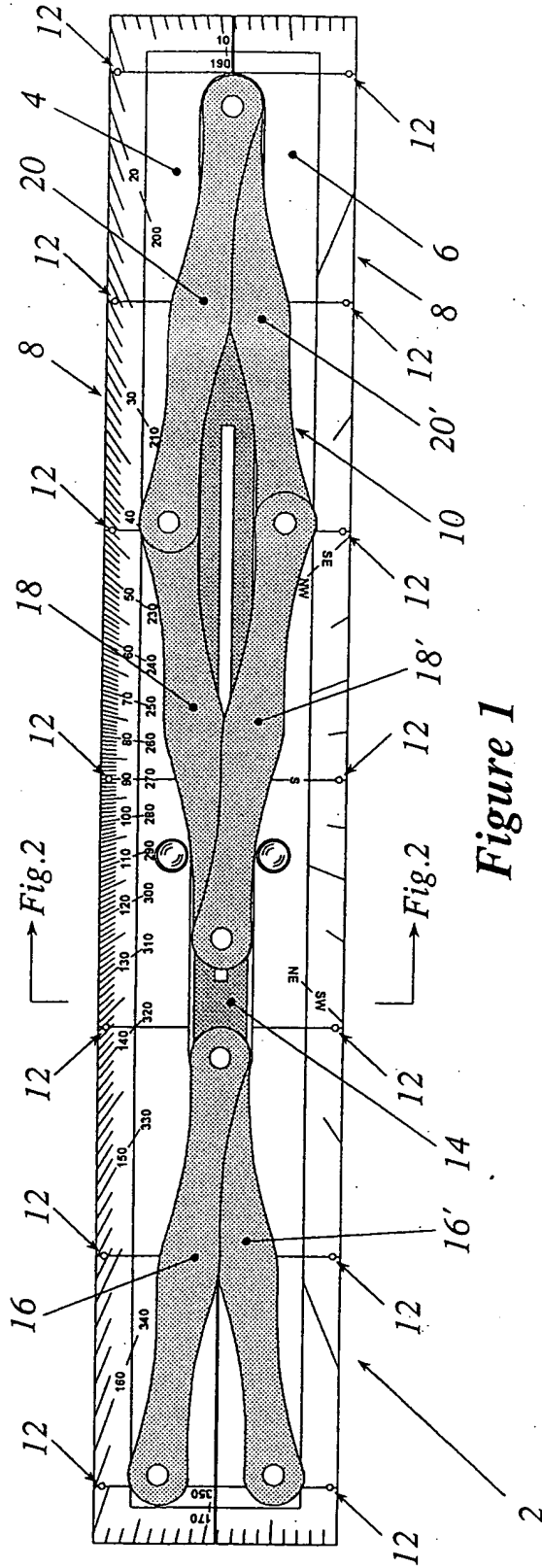


Figure 1

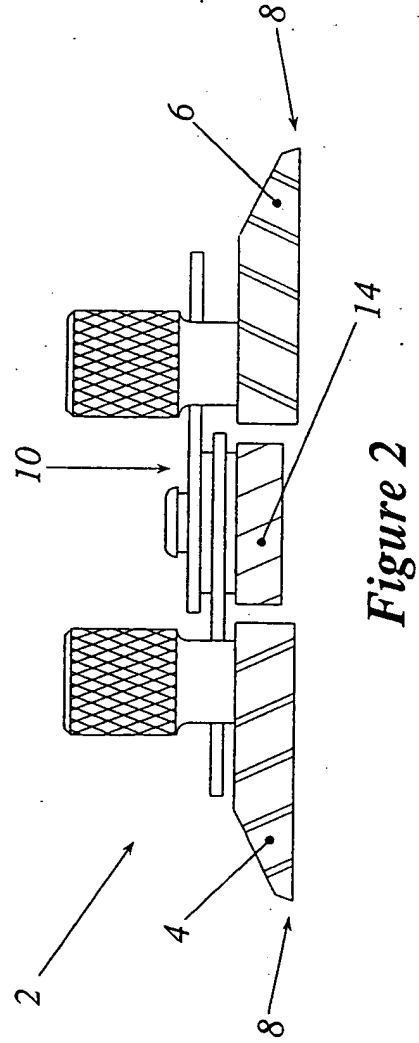


Figure 2

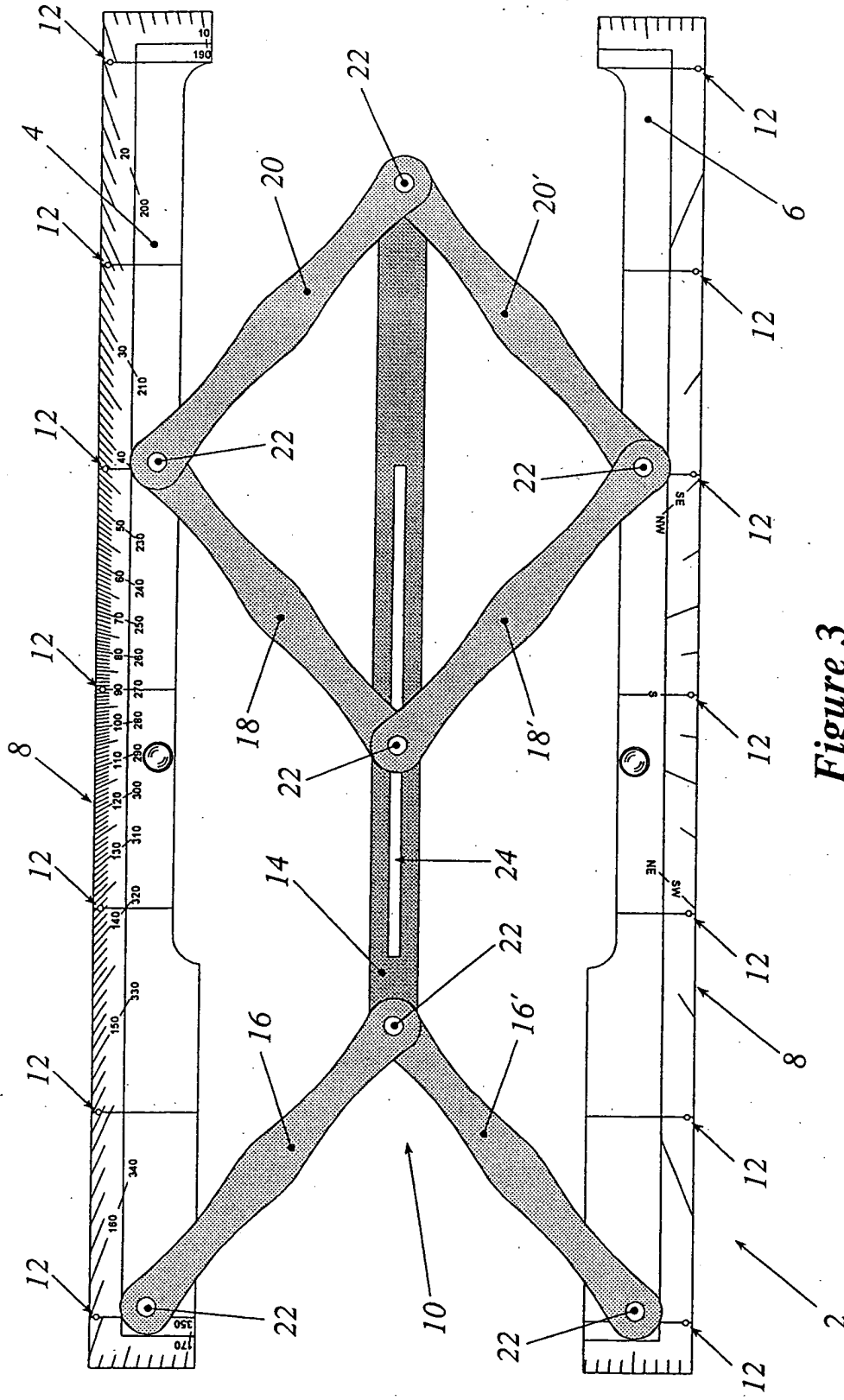


Figure 3

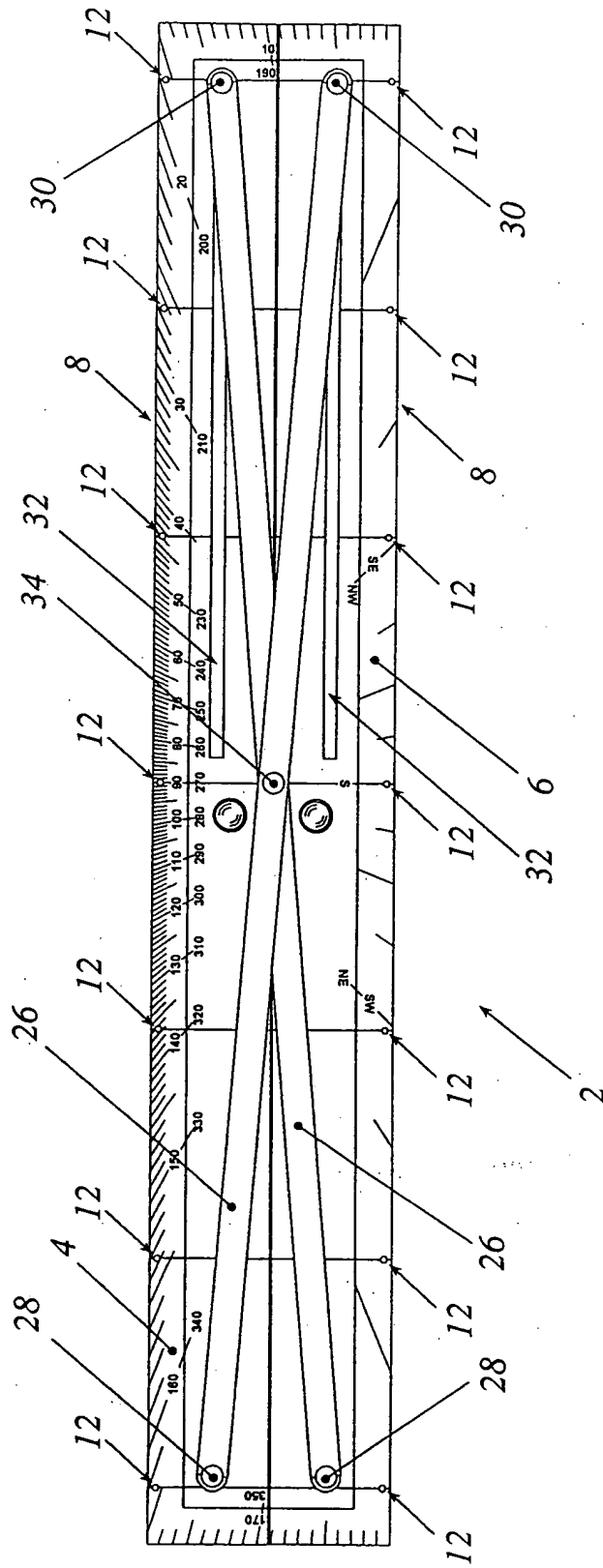


Figure 4

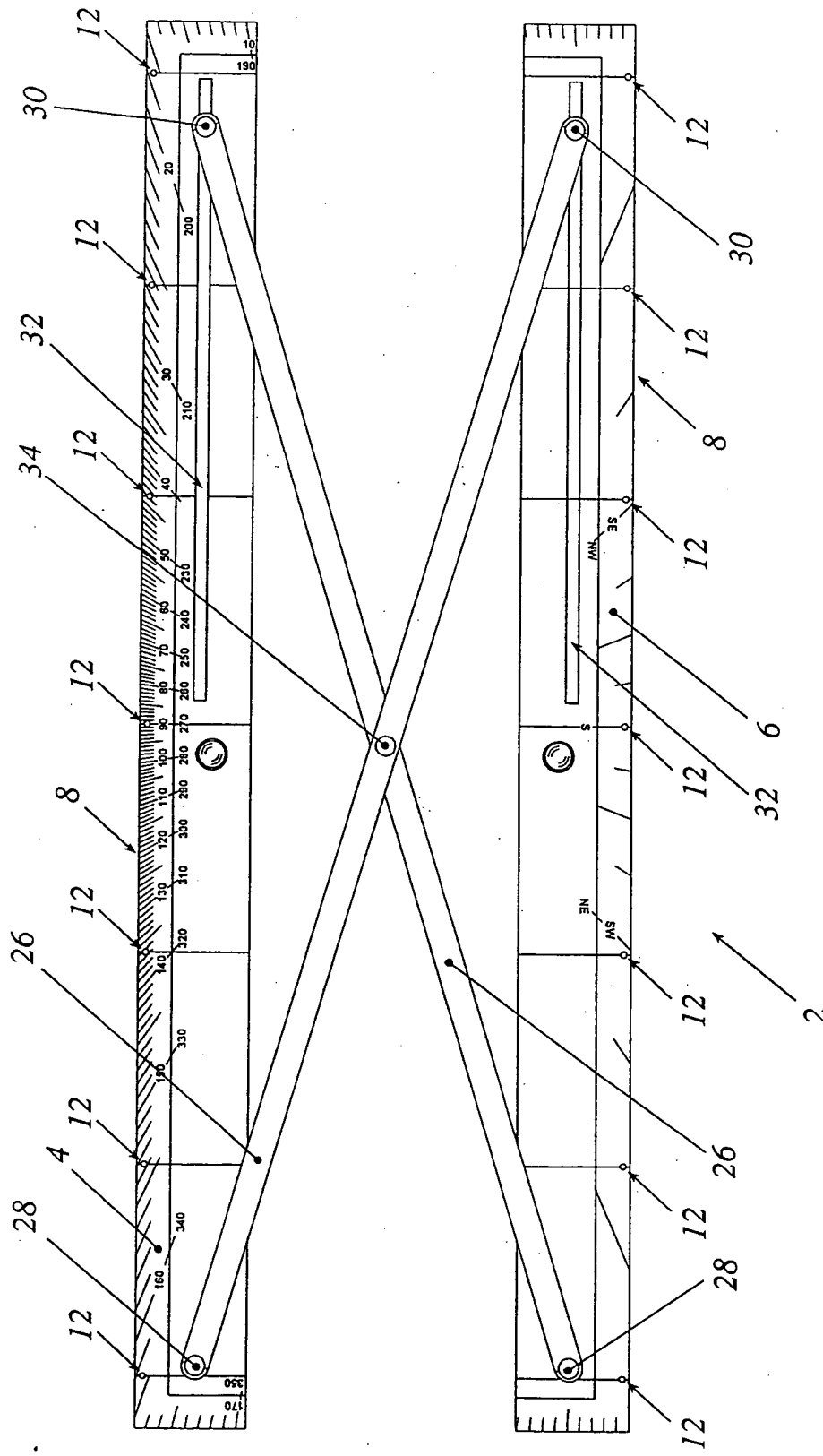


Figure 5